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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/363,823	07/30/1999	KAZUHIRO NAKATA	862.2957	8593

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EXAMINER

LAMB, TWYLER MARIE

ART UNIT PAPER NUMBER

2622

DATE MAILED: 04/08/2003

11

Please find below and/or attached an Office communication concerning this application or proceeding.

SH

Office Action Summary

Application No.

09/363,823

Applicant(s)

NAKATA, KAZUHIRO

Examiner

Twylar M. Lamb

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 March 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 18-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 18-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Notice to Applicant(s)

1. This action is responsive to the following communications: RCE filed on 3/20/03.
2. This application has been reconsidered. Claims 1-16 and 18-20 are pending.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 20 is rejected under 35 U.S.C. 102(e) as being anticipated by Oda (US 5,838,888).

With regard to claim 20, Oda discloses a data processing apparatus and method (Figure 5, printer 7, col 3, lines 26-27) for processing data in an image printing apparatus (Figure 5, printer 7) subjected to time-division drive of a printhead (col 3, line 64 - col 4, line 8) and having a first storage means (which reads on the data being provided in a data storage table formed on the print buffer in a matrix form) (Figures 9B-9C, col ; 4, lines 53-59) and a second storage means (which reads on the data being provided in a data storage table formed on the print buffer in a matrix form) (Figures 9B-9C, col ; 4, lines 53-59), comprising: a horizontal-to-vertical conversion step (Figure 9A, col 4, lines 61-64) of storing data in the first storage means in the horizontal direction

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and reading data from two or more address regions in the first storage means in the vertical direction (col 4, line 53 – col 5, line 26); a rearranging step of rearranging one word of data corresponding to a plurality of contiguous print elements provided on the printhead, which is included in data read from the first storage means in said horizontal-to-vertical conversion step, to store the one word of data in one address region within the second storage means (col 4, line 53 – col 5, line 26); and a transfer step of transferring the one word of data stored in the one address region within the second storage means to the printhead so as to drive the print elements according to one word of data (col 4, line 53 – col 5, line 26).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-16 and 18-19 rejected under 35 U.S.C. 103(a) as being unpatentable over Oda (US 5,838,888) in view of Akiyama et al. (Akiyama) (US 5,222,818).

In regards to claims 1 and 2, Oda discloses a data processing apparatus and method (Figure 5, printer 7, col 3, lines 26-27) for processing data in an image printing apparatus (Figure 5, printer 7) subjected to time-division drive of a printhead (col 3, line 64 - col 4, line 8), comprising the step of: rearranging the data in such a manner that one or more address regions in the print buffer are occupied with one word of data

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(which reads on receiving the data in a serial format and converting it to a parallel format and the data being provided in a data storage table and the table being divided into data areas of 8 bits, which according to the specification page 7, lines 17-19 represents one word) (col 3, line 64 - col 4, line 11; Figures 9B and 9C, col 4, lines 59-61) corresponding to a plurality of contiguous print elements provided on a printhead, that is stored divisionally in two or more address regions in the editing buffer, and storing the data in one address region in the print buffer (which reads on distributing the print data for each dot to the corresponding channels of the printing elements) (col 1, lines 26-30; col 5, lines 12-21).

While Oda clearly performs editing and printing, Oda differs from claim 1, in that he does not clearly teach having an editing buffer and a print buffer.

Akiyama discloses a printer in which RAM 57 provides the memory for functions of an editing buffer (58) and a print buffer (60) (col 6, lines 12-13).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Oda to include having an editing buffer and a print buffer as taught by Akiyama. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Oda by the teaching of Akiyama to provide storage space for editing data and print data to be stored as taught by Akiyama in col 6, lines 12-13.

In regards to claim 3, Oda also discloses comprising: first storage means for storing data of a plurality of words (which reads on the data being provided in a data storage table formed on the print buffer in a matrix form) (Figures 9B-9C, col ; 4, lines

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53-59) and delay means for delaying an amount of data that corresponds to a whole-number multiple of a number of time divisions employed in time-division drive, said delayed data being from the data that has been read out of said editing buffer (which reads on the data being provided in a data storage table formed on the print buffer in a matrix form) (Figures 9B-9C, col ; 4, lines 53-59).

In regards to claim 4, Oda also discloses wherein storage means for a horizontal-to-vertical conversion is used as said print buffer (Figure 9A, col 4, lines 61-64).

In regards to claim 5, Oda discloses an image printing apparatus (Figure 5, printer 7, col 3, lines 26-27) subjected to time-division drive (col 3, line 64 - col 4, line 8) in which n represents the number of time divisions (which reads on the different printing clock pulses) (Figure 3, printing clock pulse, col 5, line 49 - col 6, line 23) and one word is composed of m bits (which reads on the data being provided in a data storage table and the table being divided into data areas of 8 bits, which according to the specification page 7, lines 17-19 represents one word) (Figures 9B and 9C, col 4, lines 59-61), comprising: data processing means for reading n -bit data corresponding to n contiguous nozzles serves as one unit from an editing buffer and storing contiguous 1-bit data (where the lowest common multiple of n and m is 1) in one row within a print buffer, said data being from data output by driving the apparatus one time (which reads on receiving the data in a serial format and converting it to a parallel format to the print buffer circuits, and the data being provided in a data storage table and the table being divided into data areas of 8 bits, which according to the specification page 7, lines 17-19 represents one word) (col 3, line 64 - col 4, line 11; Figures 9B and 9C, col 4, lines 59-61); wherein n -bit

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data corresponding to n-number of contiguous nozzles serves as one unit (which reads on the number of bits of data corresponding to the channels of the printing elements) (col 1, lines 26-30; col 5, lines 12-21).

While Oda clearly performs editing and printing, Oda differs from claim 5, in that he does not clearly teach having an editing buffer and a print buffer.

Akiyama discloses a printer in which RAM 57 provides the memory for functions of an editing buffer (58) and a print buffer (60) (col 6, lines 12-13).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Oda to include having an editing buffer and a print buffer as taught by Akiyama. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Oda by the teaching of Akiyama to provide storage space for editing data and print data to be stored as taught by Akiyama in col 6, lines 12-13.

In regards to claim 6, Oda discloses an image printing apparatus (Figure 5, printer 7, col 3, lines 26-27) for processing data in which one word consists of eight bits (which reads on the data being provided in a data storage table and the table being divided into data areas of 8 bits) (Figures 9B and 9C, col 4, lines 59-61), comprising: printhead driving means (Figure 10, printing head driver 19) for discharging ink from four contiguous nozzles of a print head at different timings (which reads on the data being provided to a 4-bit shift register and distributed by the 4-bit shift register to the corresponding channel) (col 5, lines 12-26); a print buffer (Figure 10, 4-bit shift register 52, col 5, lines 15-20) for outputting image data to said printhead driving means; and

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data transfer means (Figure 10, data selector 53, col 19-21) for reading data from said editing buffer and transferring data to said print buffer; said data transfer means rearranging sets of 4-bit data, each set of which corresponds to four contiguous nozzles of the printhead (which reads on the data being provided to a 4-bit shift register and distributed by the 4-bit shift register to the corresponding channel) (col 5, lines 12-26), in such a manner that two sets of data are rendered contiguous (which reads on the data being printed without a shift in position) (col 5, line 49 - col 6, line 41).

While Oda clearly performs editing and printing, Oda differs from claim 6, in that he does not clearly teach having an editing buffer and a print buffer.

Akiyama discloses a printer in which RAM 57 provides the memory for functions of an editing buffer (58) and a print buffer (60) (col 6, lines 12-13).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Oda to include having an editing buffer and a print buffer as taught by Akiyama. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Oda by the teaching of Akiyama to provide storage space for editing data and print data to be stored as taught by Akiyama in col 6, lines 12-13.

In regards to claims 7, 8 and 9, Oda discloses a computer-readable memory storing a control program, a method of controlling an image printing apparatus and an image printing apparatus (Figure 5, printer 7, col 3, lines 26-27) subjected to time division drive (col 3, line 64 - col 4, line 8), comprising: a print buffer for storing image data (Figure 5, print buffer 18); a printhead (Figure 5, print head 21, col 3, lines 47-54)

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for performing printing based upon the image data read out of said print buffer; and means for reading image data from two or more address regions within said editing buffer (which reads on reading the data into the print buffer) (Figure 8, buffer controller 35, col 4, lines 46-50), which will be printed by driving said print head one time, before the image data is transmitted to said printhead (which reads on reading the data in to the print buffer based on a timing signal) (Figure 8, buffer controller 35, col 4, lines 40-52), the image data being packed in numbers of bits serving as units in which data is read from and written to said editing buffer (which reads on data being stored in a table divided into data areas) (Figures 9B and 9C, col 4, lines 53-61) to store the packed image data to one address region within said print buffer, before the image data is transmitted to said printhead.

While Oda clearly performs editing and printing, Oda differs from claims 7, 8 and 9, in that he does not clearly teach having an editing buffer and a print buffer.

Akiyama discloses a printer in which RAM 57 provides the memory for functions of an editing buffer (58) and a print buffer (60) (col 6, lines 12-13).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Oda to include having an editing buffer and a print buffer as taught by Akiyama. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Oda by the teaching of Akiyama to provide storage space for editing data and print data to be stored as taught by Akiyama in col 6, lines 12-13.

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In regards to claims 10, 11, 13 and 16, Oda also discloses wherein the print element comprises a nozzle to discharge ink (Figure 5, printing head 21, Figure 3, nozzles 21a, col 3, lines 51-54).

In regards to claims 12 and 14, Oda discloses a data processing method and apparatus (Figure 5, printer 7, col 3, lines 26-27) for processing data (Figure 5, print buffer 18) in an image printing apparatus (Figure 5, printer 7) which performs printing by causing a printhead (Figure 5, printing head 21) to scan (col 3, lines 39-45; col 4, lines 12-22), said printhead having a plurality of print elements arrayed at predetermined angles with respect to the scanning direction of the printhead (col 3, lines 51-54; col 4, lines 12-15) and subjected to time-division drive (col 3, line 64 - col 4, line 8), comprising a step of: rearranging the data in such a manner that one or more address regions in the print buffer are occupied with one word of data (which reads on receiving the data in a serial format and converting it to a parallel format to the print buffer circuits, and the data being provided in a data storage table and the table being divided into data areas of 8 bits, which according to the specification page 7, lines 17-19 represents one word) (col 3, line 64 - col 4, line 11; Figures 9B and 9C, col 4, lines 59-61) corresponding to a plurality of contiguous print elements provided on a printhead, that is stored in two or more address regions within an editing buffer, is arranged in one address region within a print buffer (which reads on distributing the print data for each dot to the corresponding channels of the printing elements) (col 1, lines 26-30; col 5, lines 12-21).

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While Oda clearly performs editing and printing, Oda differs from claims 12 and 14, in that he does not clearly teach having an editing buffer and a print buffer.

Akiyama discloses a printer in which RAM 57 provides the memory for functions of an editing buffer (58) and a print buffer (60) (col 6, lines 12-13).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Oda to include having an editing buffer and a print buffer as taught by Akiyama. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Oda by the teaching of Akiyama to provide storage space for editing data and print data to be stored as taught by Akiyama in col 6, lines 12-13.

In regards to claim 15, Oda also discloses comprising: first storage means for storing data of a plurality of words (which reads on the data being provided in a data storage table with 64 rasters formed on the print buffer in a matrix form) (Figures 9B-9C, col ; 4, lines 53-59) and delay means for delaying an amount of data that corresponds to a whole-number multiple of a number of time divisions employed in time-division drive, said delayed data being from the data that has been read out of said first storage means ({printing clock}, col 5, lines 10-26).

With regard to claim 18, Oda also discloses a first register (shift register 54) for storing a whole-number multiple of one word of data which is read from two or more address regions within the editing buffer; and second register (shift register 56) for storing a set of data that corresponds to contiguous print elements, a number of which is a whole-number multiple of a number of time division drive (col 7, lines 50-65).

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With regard to claim 19, Oda clearly performs editing and printing, Oda differs from claim 19, in that he does not clearly teach said editing buffer and said print buffer are allocated different areas within a memory respectively.

Akiyama discloses a printer in which RAM 57 provides the memory for functions of an editing buffer (58) and a print buffer (60) (col 6, lines 12-13).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Oda to include having an editing buffer and a print buffer as taught by Akiyama. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Oda by the teaching of Akiyama to provide storage space for editing data and print data to be stored as taught by Akiyama in col 6, lines 12-13.

Response to Arguments

7. Applicant's arguments with respect to claims 1-16 and 18-20 have been considered but are moot in view of the new ground(s) of rejection.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Twyler Lamb whose telephone number is 703 - 305-8823. The examiner can normally be reached on M-TH (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward L Coles can be reached on 703-305-4712. The fax phone numbers

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for the organization where this application or proceeding is assigned are 703-746-6036
for regular communications and 703-872-9314 for After Final communications.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, DC 20231

or faxed to:

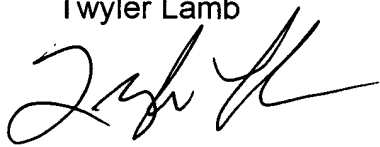
(703) 872-9314

(for informal or draft communications, such as proposed amendments to be
discussed at an interview; please label such communications "PROPOSED" or
"DRAFT")

or hand-carried to:

Crystal Park Two
2121 Crystal Drive
Arlington, VA.
Sixth Floor (Receptionist)

Twyler Lamb

A handwritten signature in black ink, appearing to read 'Twyler Lamb', written over the printed name.

April 7, 2003